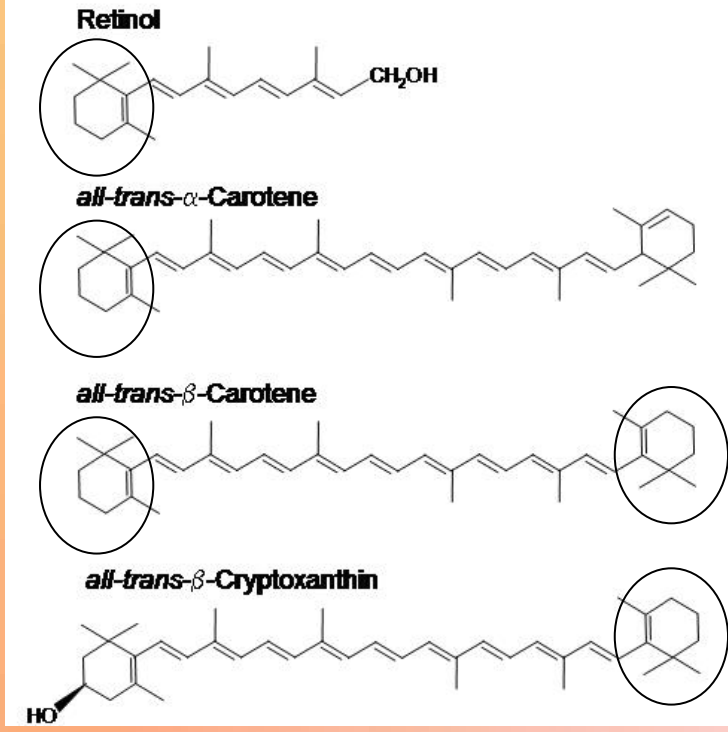
Effect of processing on carotenoid losses in orange-fleshed sweet potato: from the field to the fork

Aurélie Bechoff, Keith Tomlins, Claudie Dhuique-Mayer, Constance Owori, Geoffrey Menya, Dominique Dufour, Richard Dove, Claude Marouze, Manuel Dornier, Renaud Boulanger & Andrew Westby

Carotenoids & diet

- Carotenoids are pigments found in plants.
- Some carotenoids have vitamin A activity = provitamin A carotenoids
- Vitamin A - essential micronutrient (for body; eye; skin) that is only found in diet.
- A lack of vitamin A results in vitamin A deficiency (VAD)
- 127 million children affected in the world:
  - 38% Uganda
  - 71% Mozambique



•Chemical function gives vitamin A its activity

Carotenoid degradation

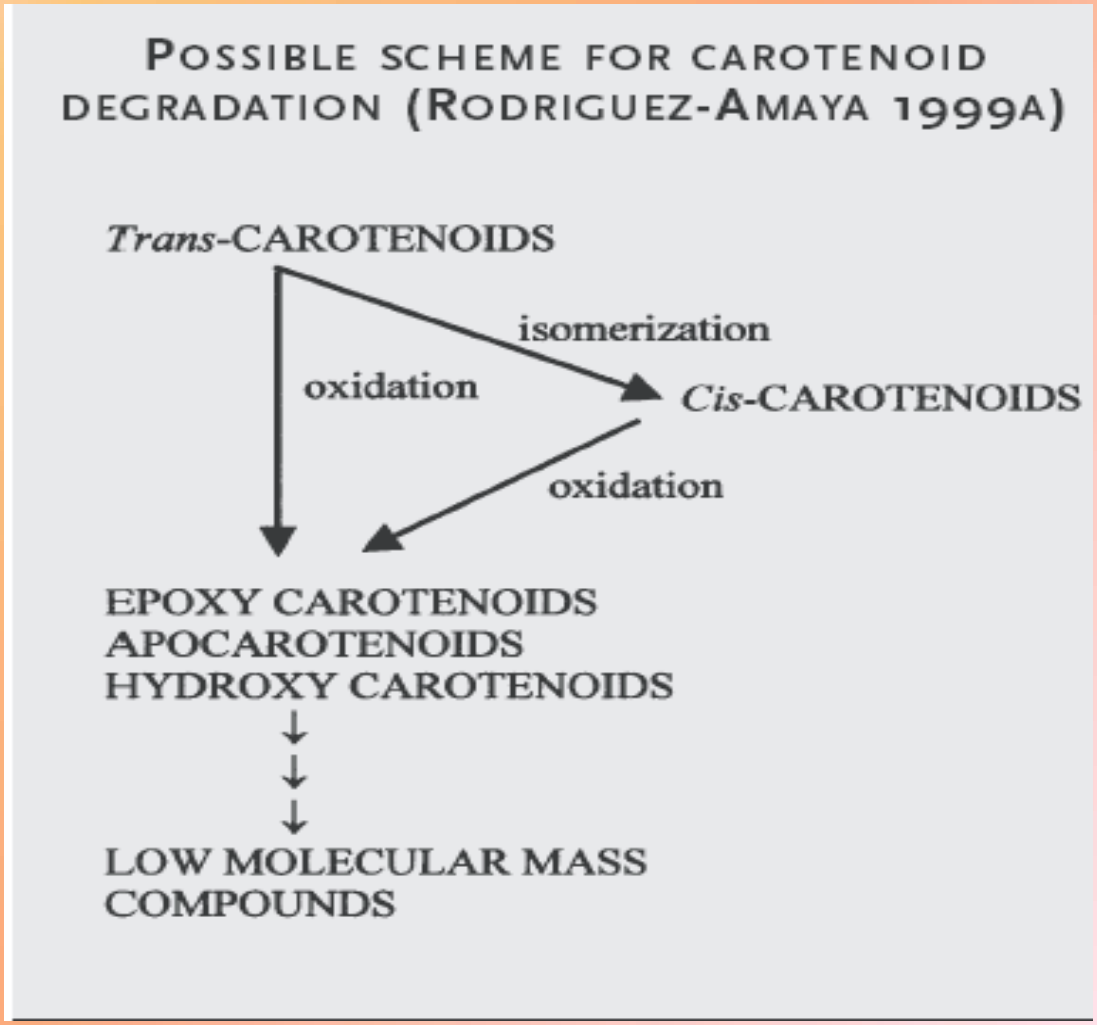
- Provitamin A carotenoids are unsaturated structures= unstable

Main factors:

- Light (UV)
- heat
- air oxidation
- A_w

Degradation pathways

1. Isomerisation
2. Oxidation



Sweet potato products

- Main preparation of SP in Africa: boiling, steaming & drying
- Drying: facilitate transport & storage during off-season.
- Variety of products can be made from dried sweet potato

Orange fleshed sweet potato (OFSP)

- OFSP - high concentrations of provitamin A carotenoids.
- OFSP - way of tackling VAD.

How much provitamin A is lost during processing of OFSP?